2006-08 ACCESSORIES & EQUIPMENT

Gauges - Civic (All Except Hybrid)

COMPONENT LOCATION INDEX

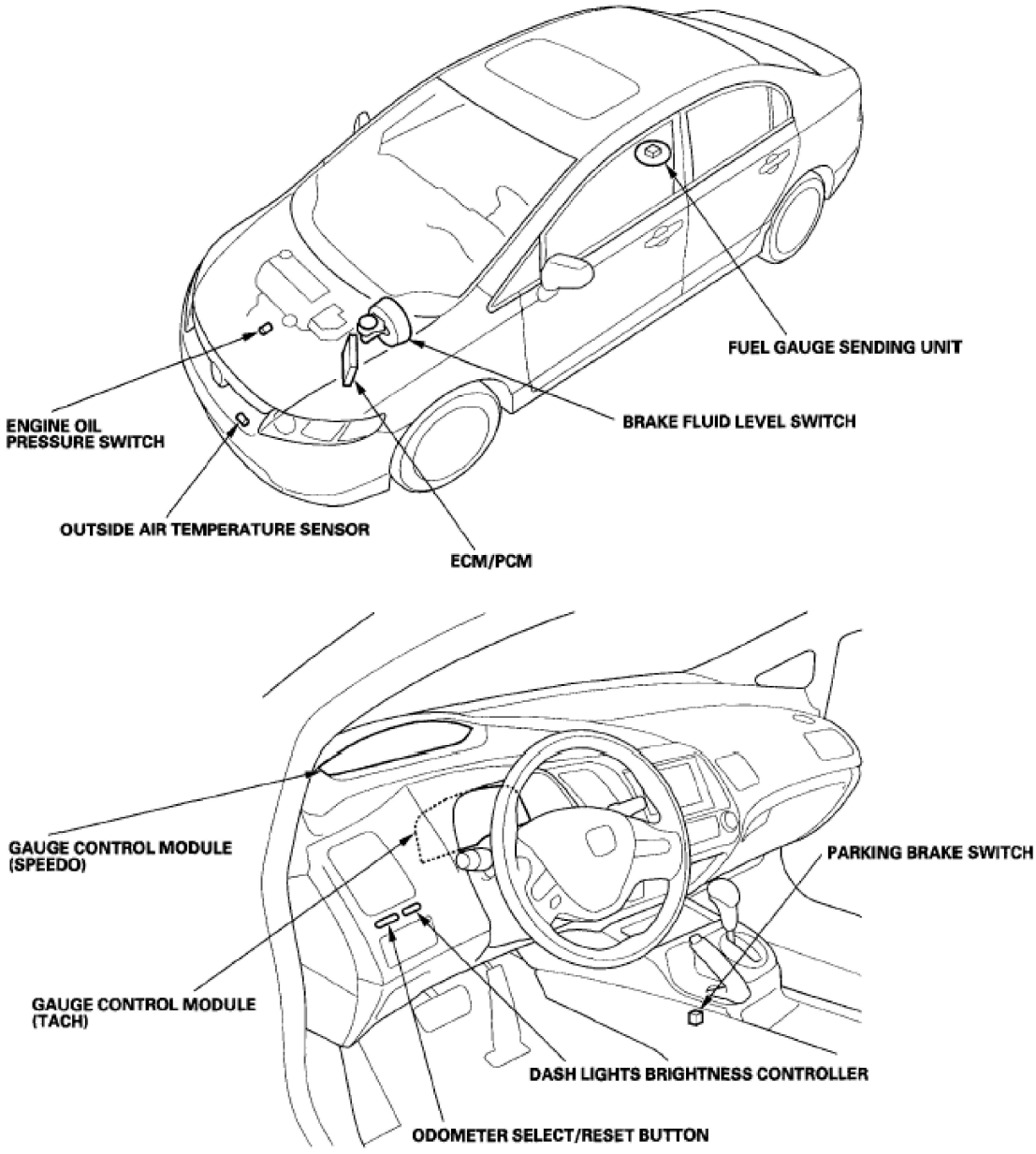

Fig. 1: Locating Gauges Components

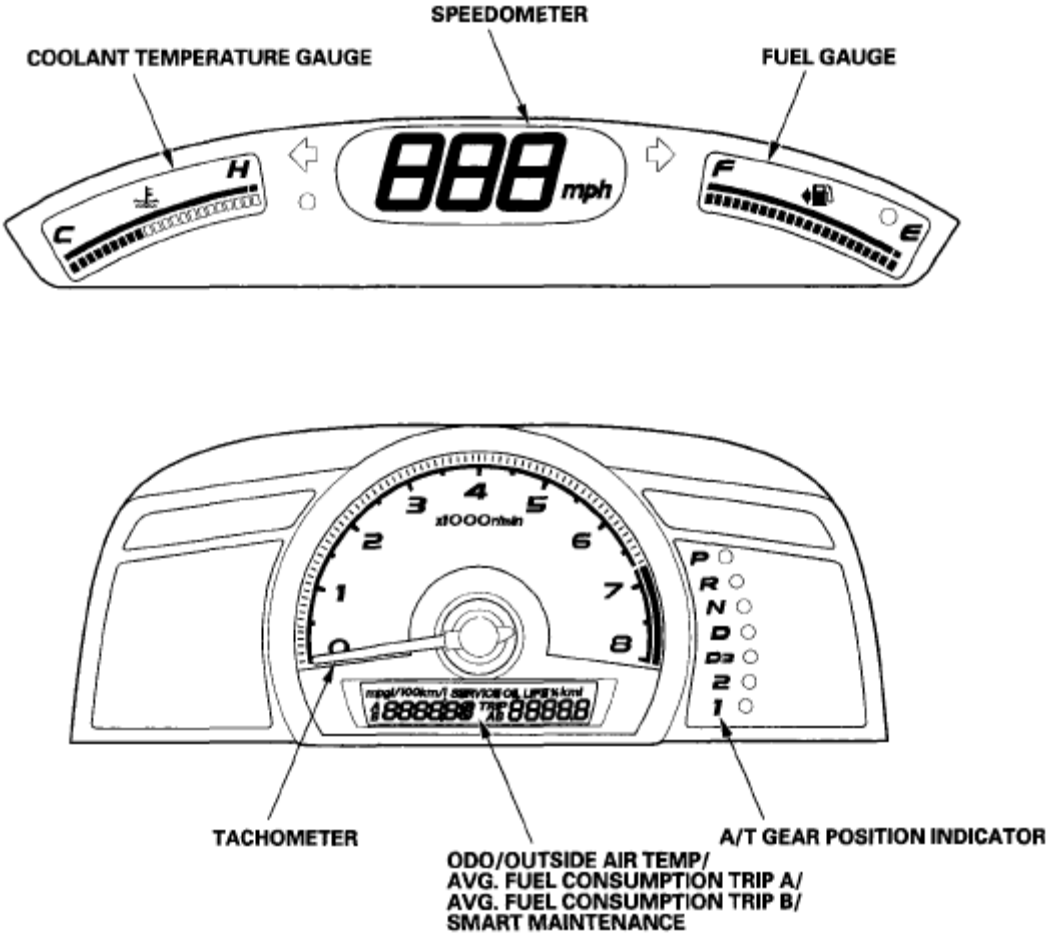

Fig. 2: Identifying Speedometer And Tachometer Components

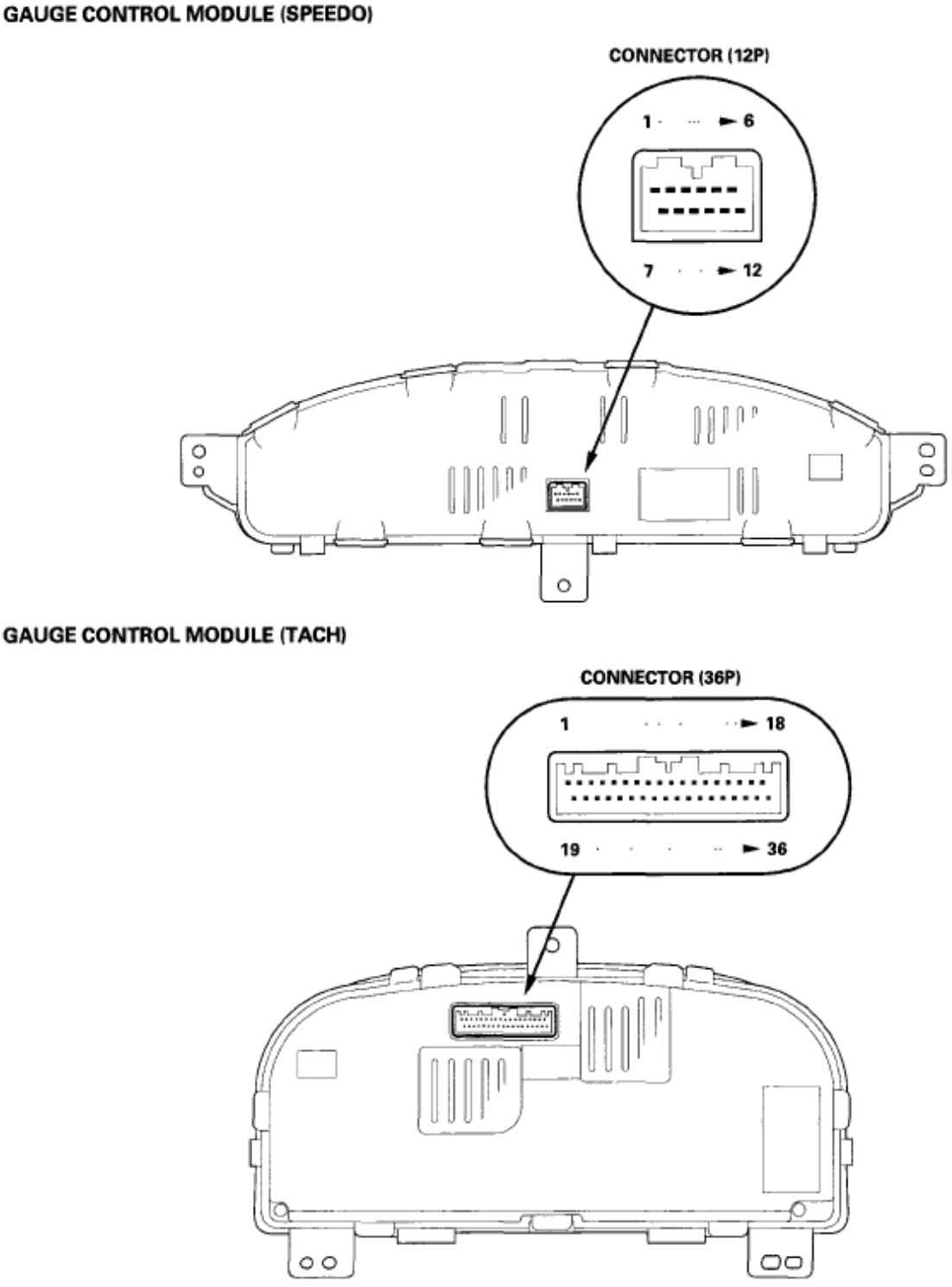

Fig. 3: Identifying Gauge Control Modules

SELF-DIAGNOSTIC FUNCTION

Before troubleshooting the gauge system, refer to multiplex integrated control system B-CAN System Diagnosis Test Mode A (see **TROUBLESHOOTING - B-CAN SYSTEM DIAGNOSIS TEST MODE A**).

The gauge control module (tach) has a self-diagnostic function shown, and also has a customizable reset function.

- The beeper drive circuit check.
- The indicator drive circuit check.
- The switch input test.
- The LCD segments check.
- 4-door: The gauges drive circuit check (Tachometer, Fuel gauge, Coolant temperature gauge).
- 2-door: The self-diagnostic function does not operate the Fuel gauge and Coolant temperature gauge.
- The communication line check (of the body-controller area network (B-CAN) communication line and the fast-controller area network (F-CAN) communication line between the gauges).

NOTE: Indicators are also controlled via the communication line.

ENTERING THE SELF-DIAGNOSTIC FUNCTION WITH THE HDS

4-door: Using the HDS, select Body Electrical, Gauges, then Function Test and do the self-diagnostic Function.

2-door: Use the manual method.

ENTERING THE SELF-DIAGNOSTIC FUNCTION (MANUAL METHOD)

Before doing the self-diagnostic function, check the No. 10 (7.5 A) fuse in the under-dash fuse/relay box and the No. 23 (10 A) fuse in the under-hood fuse/relay box.

1. Push and hold the SEL/RESET switch button.
2. Turn the headlights ON.

3. Turn the ignition switch ON (II).
4. Within 5 sec, turn the headlights OFF, then ON and OFF again.
5. Within 5 sec, release the SEL/RESET switch button, and then push and release the button three times repeatedly.

NOTE:

- **While in the self-diagnostic mode, the dash lights brightness controller operates normally.**
- **While in the self-diagnostic mode, the SEL/RESET button is used to start the Beeper Drive Circuit Test and the Gauge Drive Circuit Check.**
- **If the vehicle speed exceeds 1.2 mph (2 km/h) or the ignition switch is turned OFF, the self-diagnostic mode ends.**

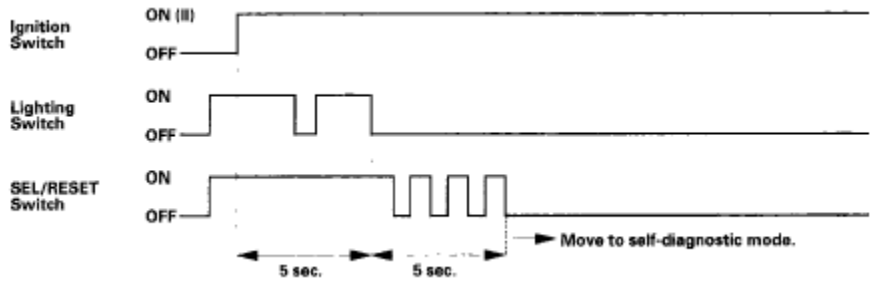

Fig. 4: Self-Diagnostic Function Blinking Pattern

THE INDICATOR DRIVE CIRCUIT CHECK

When entering the self-diagnostic mode, the following indicators blink:

ABS indicator, A/T gear position indicator, brake system indicator, charging system indicator, cruise control indicator, cruise indicator, door indicator, DRL indicator, high beam indicator, immobilizer indicator, lights-on indicator, low fuel indicator, malfunction indicator lamp (MIL), oil pressure indicator, Seat belt indicator, security indicator, side airbag off indicator, smart maintenance indicator, SRS indicator, trunk indicator, and washer fluid level indicator (Canada models).

SWITCH INPUT CHECK

At the initial stage of the self-diagnostic function, the beep sounds intermittently, the beeper sounds continuously when any of the following switch inputs are switched from OFF to ON:

Cruise control master, SET, RESUME, CANCEL switches, SEL/RESET switch, mph-km/h switch, illumination volume (+), (-) switch, parking brake switch, and VSA OFF switch.

THE BEEPER DRIVE CIRCUIT CHECK

When entering the self-diagnostic mode, the beeper sounds five times.

THE LCD SEGMENT CHECK

4-door: When entering the self-diagnostic mode, all the segments blink five times.

2-door: Self-diagnostic function does not operate the Fuel gauge and Coolant temperature gauge.

THE GAUGE DRIVE CIRCUIT CHECK

When entering the self-diagnostic mode, the tachometer, needle sweeps from the minimum position to maximum position, then returns to the minimum position.

NOTE: After the beeper stops sounding and the gauge needle returns to the minimum position, pushing the SEL/RESET switch starts the Beeper Drive Circuit Check (one beep) and the Gauge Drive Circuit Check again.

The check cannot be started again until the gauge needle returns to the minimum position.

The needle sweeps from the minimum position to the maximum position, then return to the minimum position.

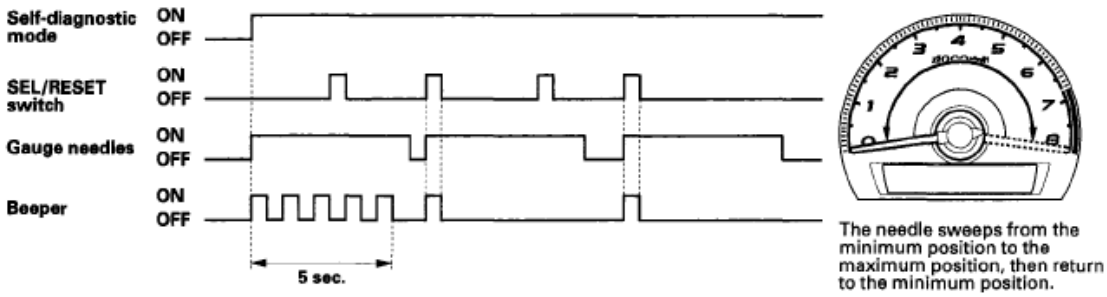

Fig. 5: Checking Gauge Drive Circuit Blinking Pattern

If the needle fails to sweep, or the beeper does not sound, replace the gauge control module (tach).

THE COMMUNICATION LINE CHECK

While in the self-diagnostic mode, the Communication Line Check starts after the LCD Segments Check.

If all segments come on, the communication line is OK. If faulty, the word "Error" will be indicated on the odometer display followed by number(s).

4-DOOR ERROR CODE LIST

Error code	Type of communication line(s) error
Error 1	F-CAN communication
Error 2	B-CAN communication
Error 3	UART communication
Error 12	F-CAN and B-CAN communication
Error 13	F-CAN and UART communication
Error 23	B-CAN and UART communication
Error 123	F-CAN, B-CAN and UART communication

2-DOOR ERROR CODE LIST

Error code	Type of communication line(s) error
Error 1	F-CAN communication
Error 2	B-CAN communication
Error 3	F-CAN and B-CAN communication

Error 12	F-CAN and B-CAN communication
Error 13	F-CAN and B-CAN communication
Error 23	F-CAN and B-CAN communication
Error 123	F-CAN and B-CAN communication

Example Indication

Fig. 6: Example Of Indication

- If the word "Error 1" is indicated, there is a malfunction in the communication line between the gauge control module (tach) and the fast-controller area network (F-CAN). Check for DTCs in the ECM/PCM and troubleshoot any DTCs found. If no DTCs are found, go to indicated troubleshooting.
- If the word "Error 2" is indicated, there is a malfunction in the communication line between the gauge control module (tach) and the body-controller area network (B-CAN). Go to troubleshooting **DTC B1155** to **DTC B1160** .
- 4-door: the word "Error 3" is indicated, there is a malfunction in the UART communication line between the gauge control module (tach) and the gauge control module (speedo). Go to **GAUGE CONTROL MODULE (TACH) INPUT TEST** and check the No. 20 terminal . If the wire harness is OK, substitute a known-good gauge control module (speedo) and recheck.

If any F-CAN or B-CAN communication line errors are found, go to DTC check using HDS .

ENDING THE SELF-DIAGNOSTIC FUNCTION

Turn the ignition switch OFF.

NOTE: If the vehicle speed exceeds 1.2 mph (2 km/h), the self-

diagnostic function ends.

CIRCUIT DIAGRAM - GAUGE CONTROL MODULE (TACH)

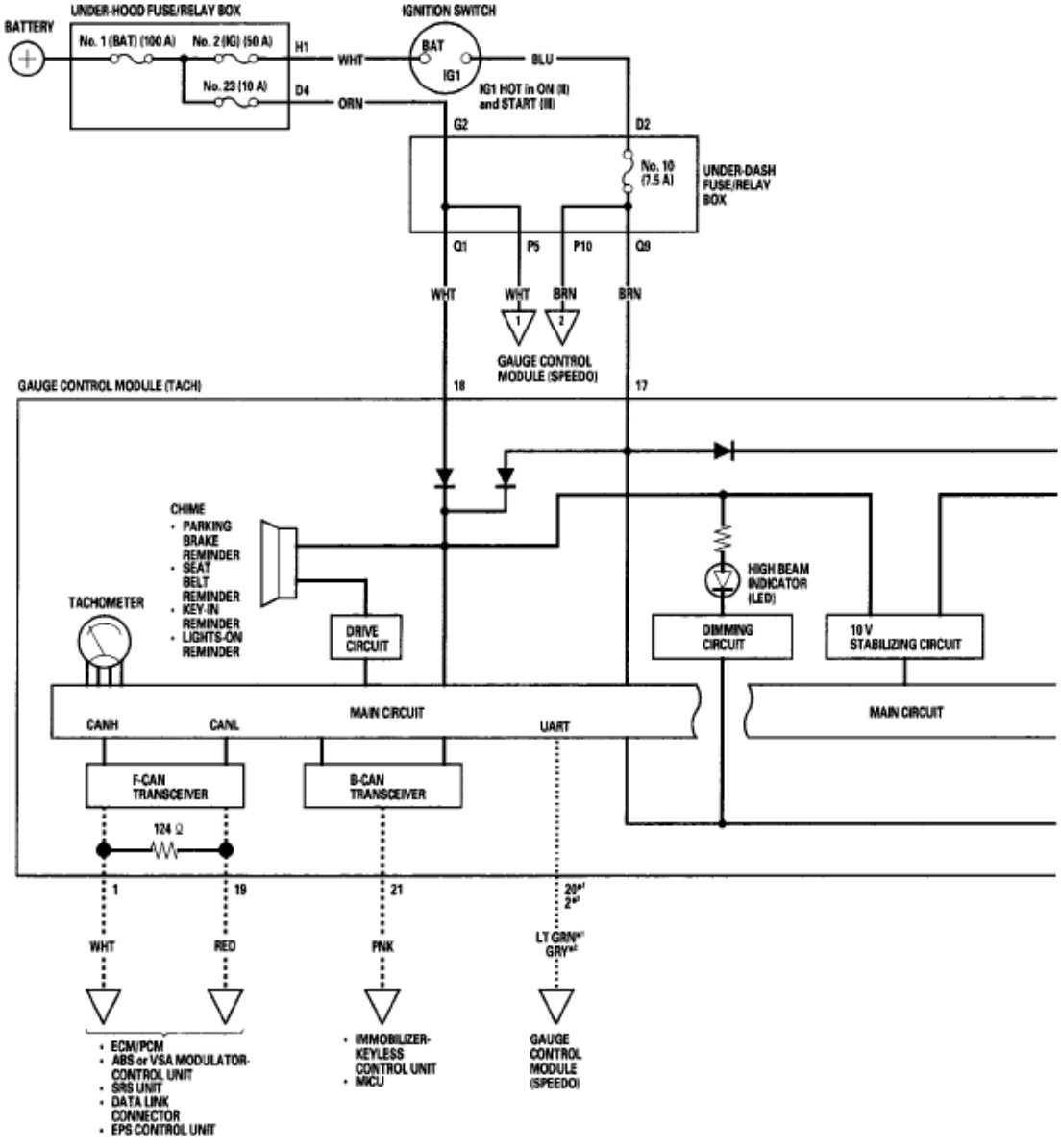

Fig. 7: Circuit Diagram - Gauge Control Module (Tach) (1 Of 5)

*1: 4-door and 2-door (DX, DX-G)
*2: 4-door (SI) and 2-door (LX, EX, SI)
********** : CAN line
·····: Other communication line

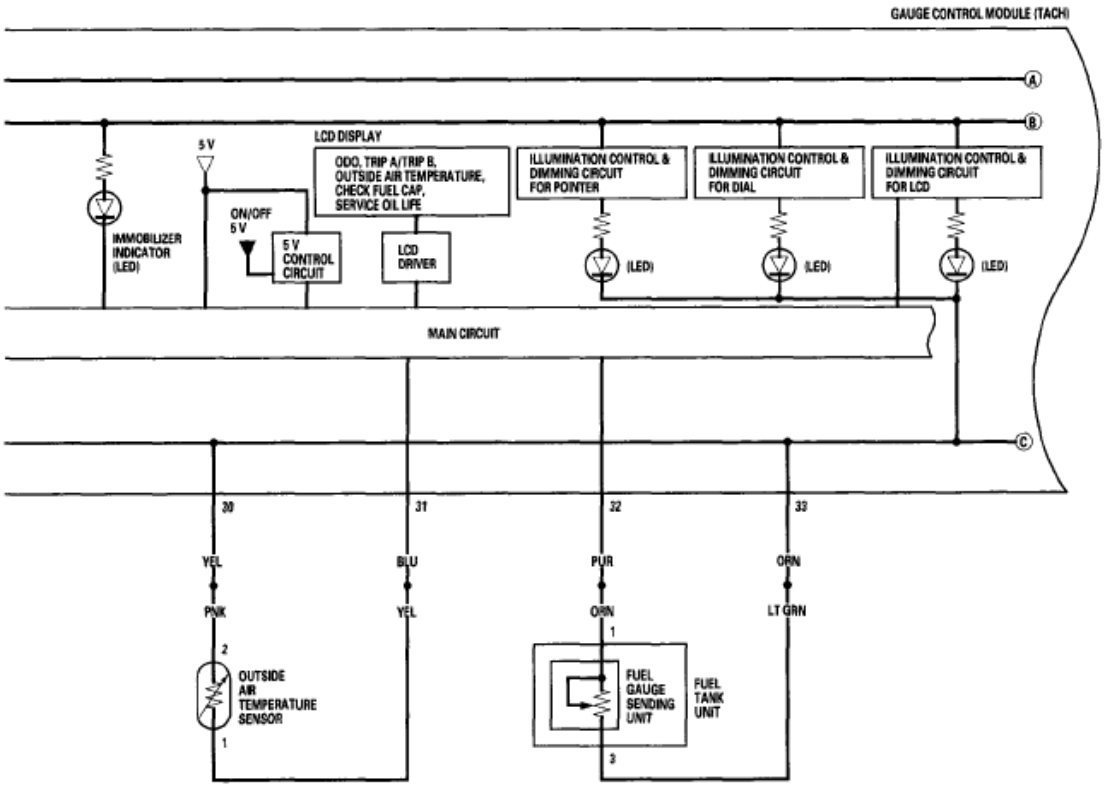

Fig. 8: Circuit Diagram - Gauge Control Module (Tach) (2 Of 5)

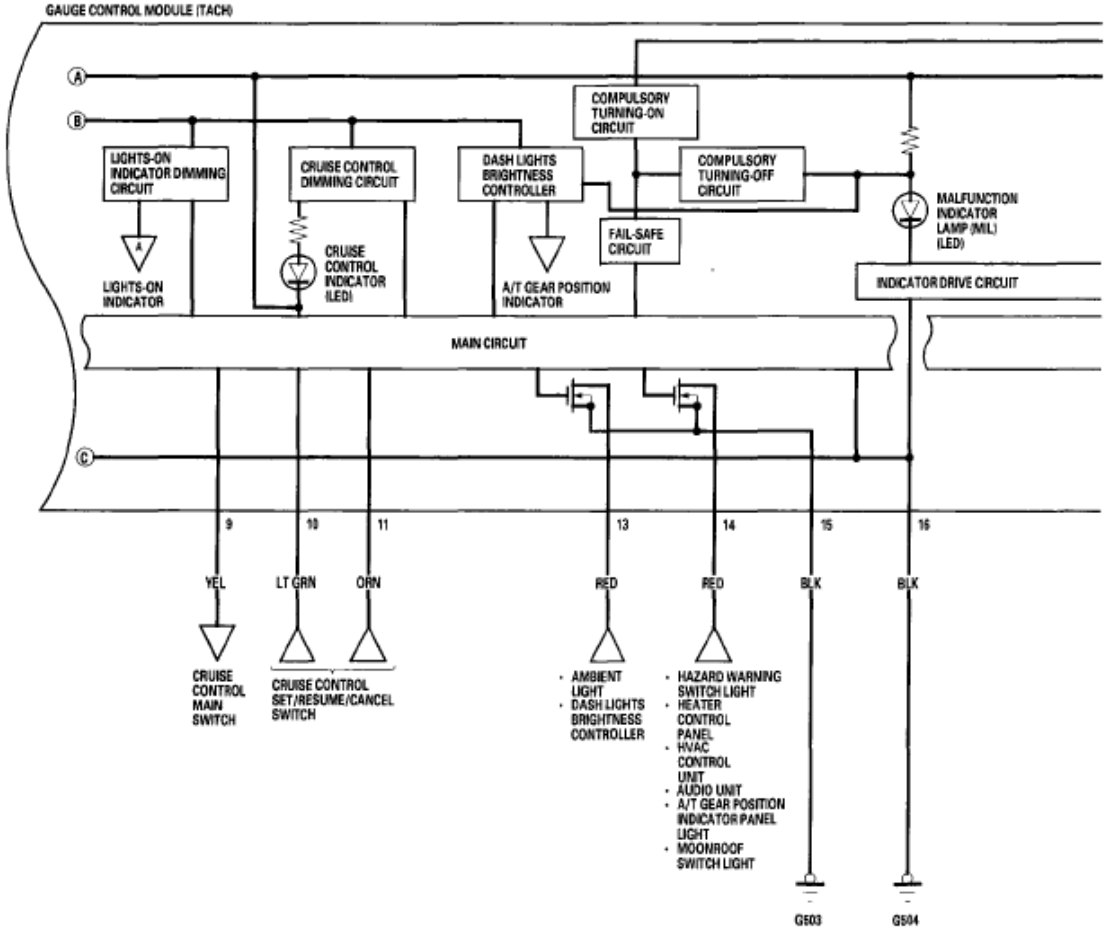

Fig. 9: Circuit Diagram - Gauge Control Module (Tach) (3 Of 5)

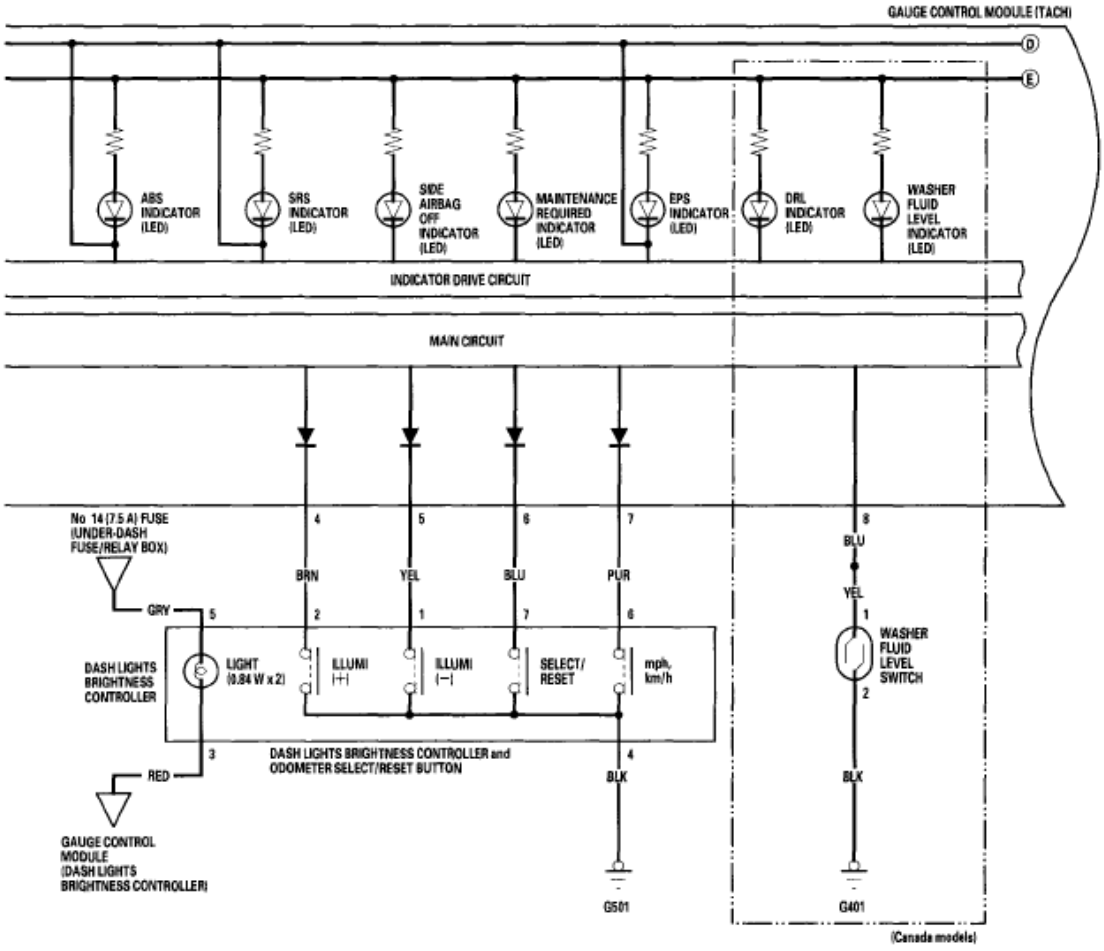

Fig. 10: Circuit Diagram - Gauge Control Module (Tach) (4 Of 5)

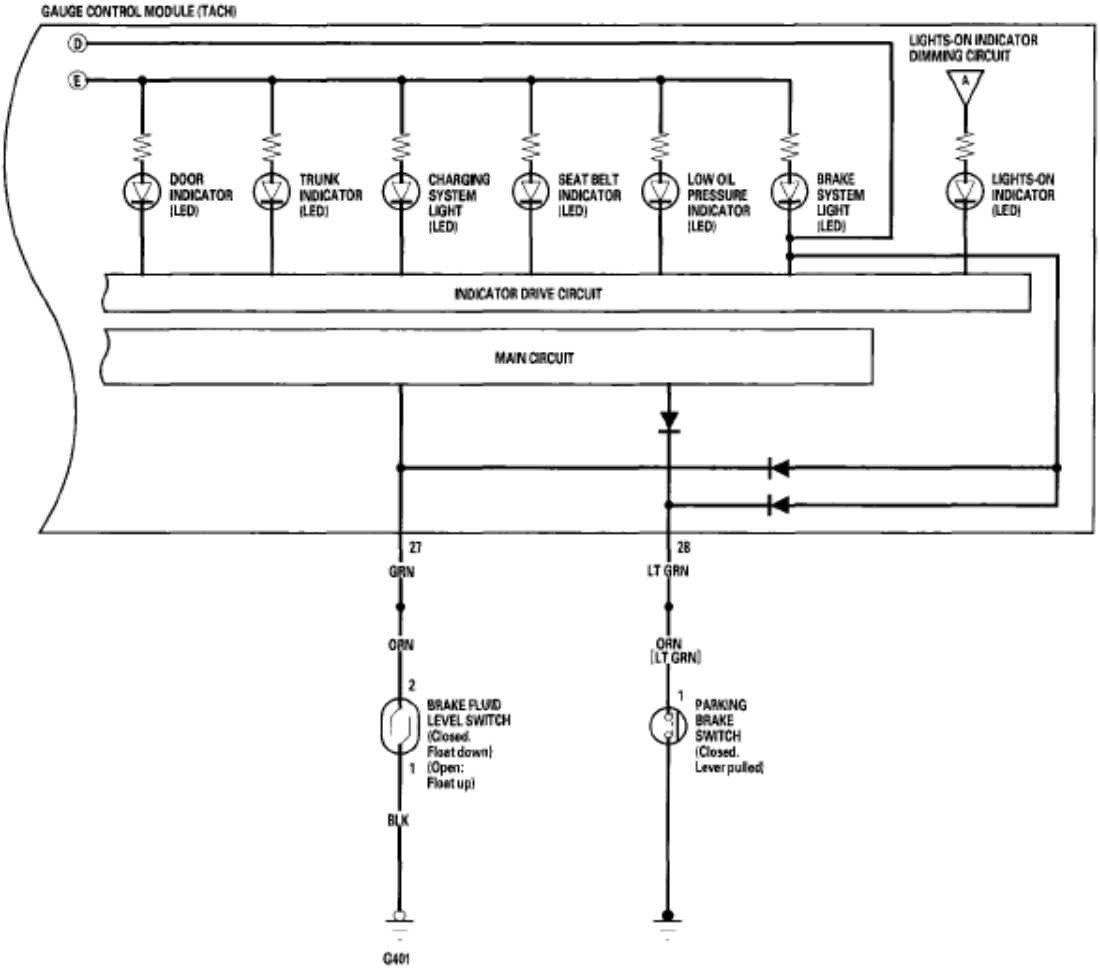

Fig. 11: Circuit Diagram - Gauge Control Module (Tach) (5 Of 5)

CIRCUIT DIAGRAM - DASH LIGHTS BRIGHTNESS CONTROLLER

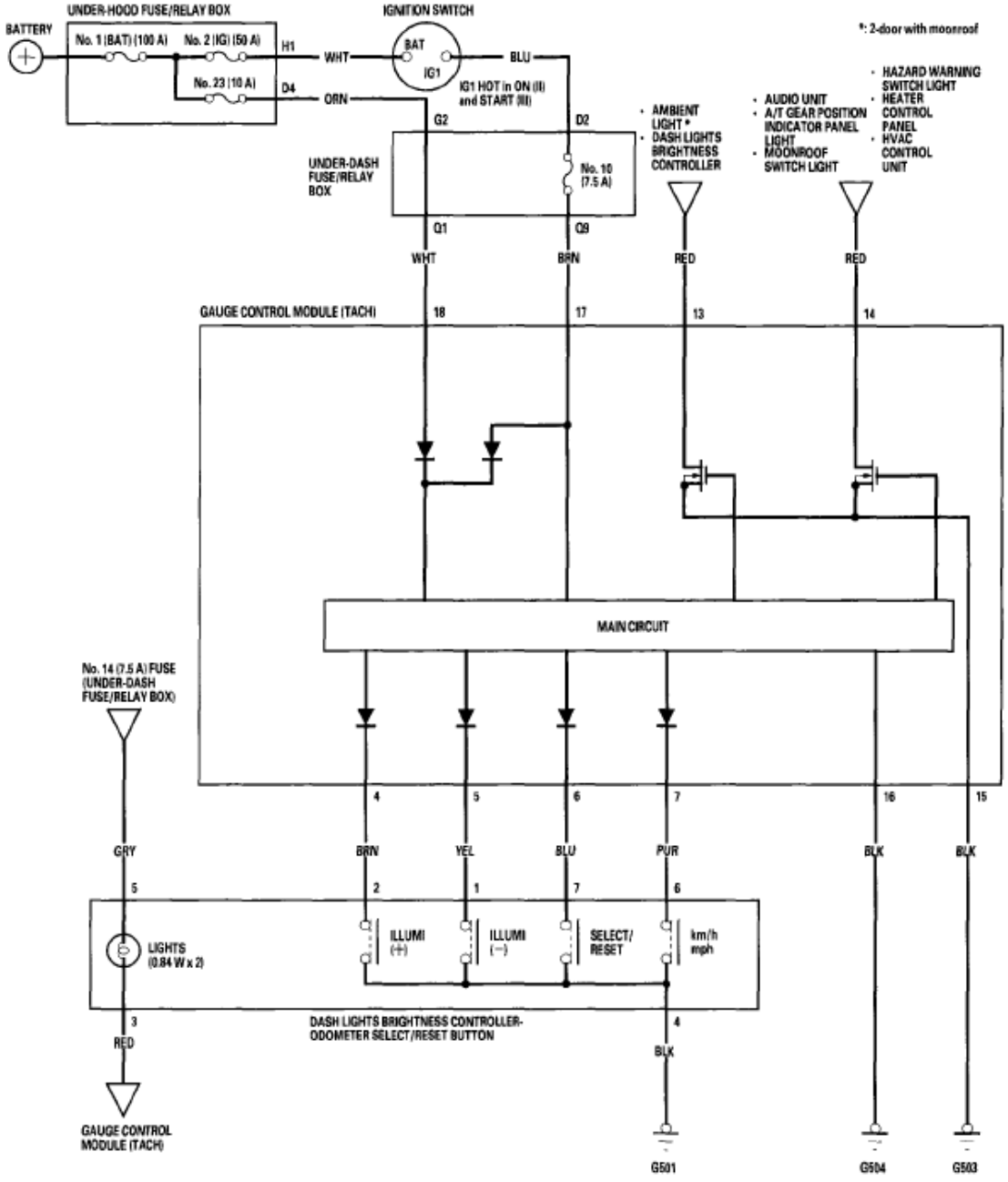

Fig. 12: Circuit Diagram - Dash Lights Brightness Controller

CIRCUIT DIAGRAM - GAUGE CONTROL MODULE (SPEEDO)

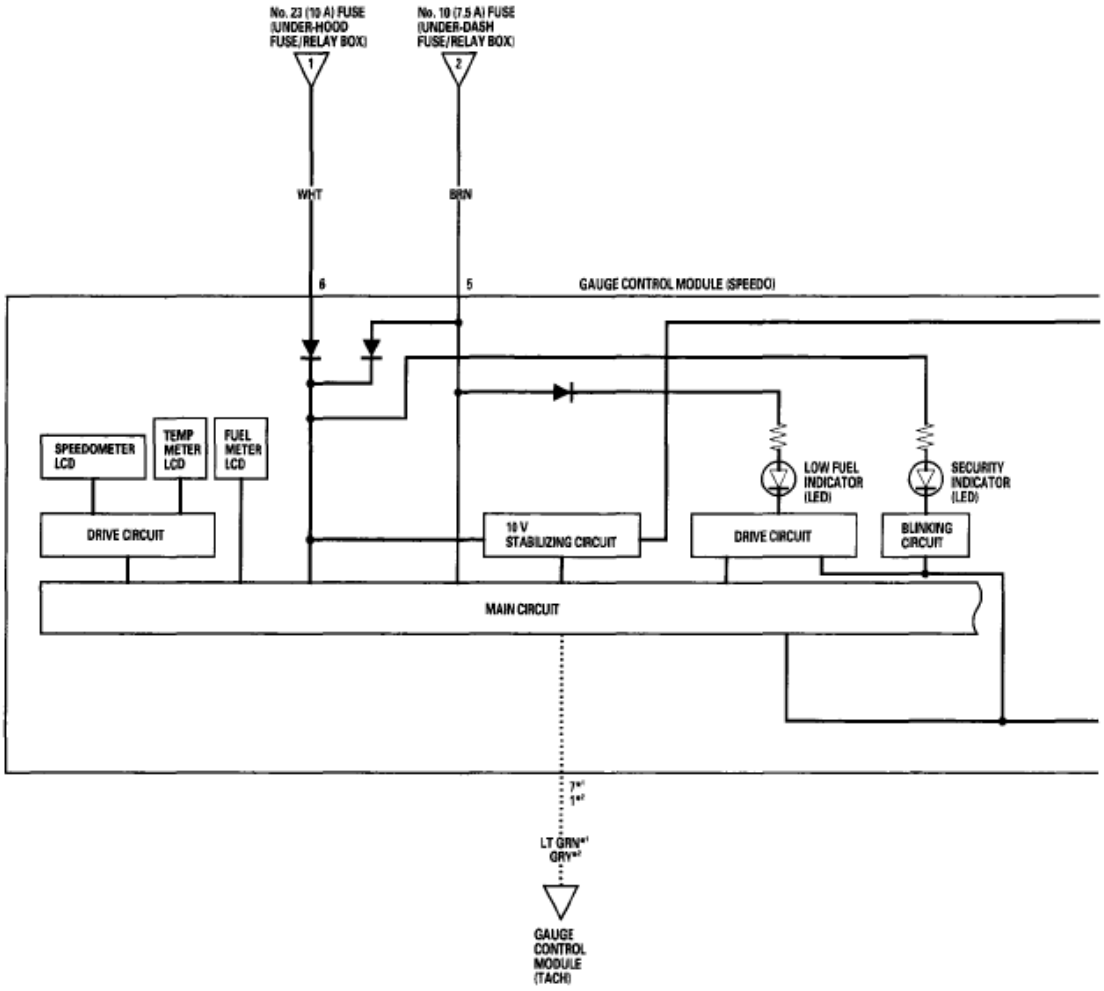

Fig. 13: Circuit Diagram - Gauge Control Module (Speedo) (1 Of 2)

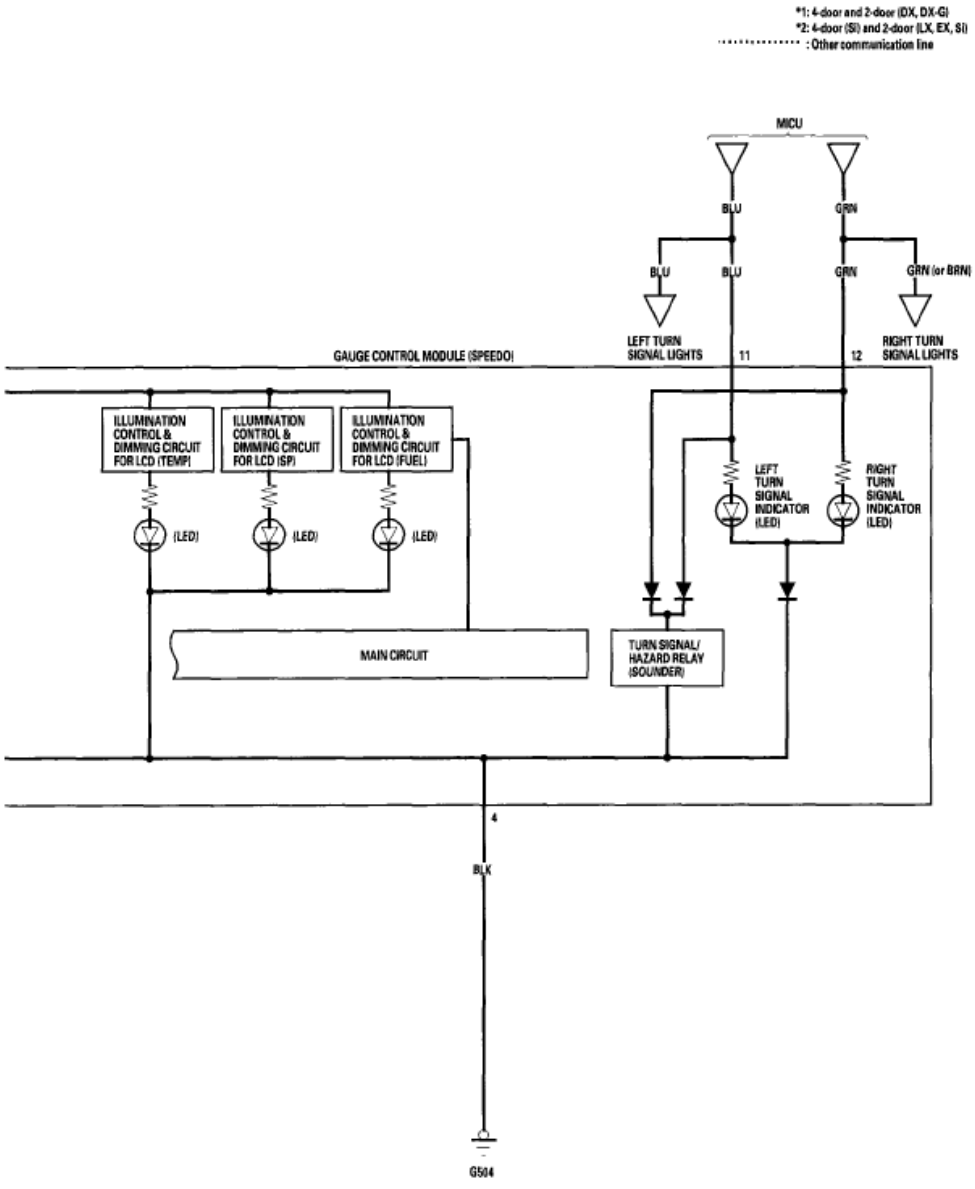

Fig. 14: Circuit Diagram - Gauge Control Module (Speedo) (2 Of 2)

DTC TROUBLESHOOTING

DTC B1152: GAUGE CONTROL MODULE (EEPROM) ERROR

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see TROUBLESHOOTING - B-CAN SYSTEM DIAGNOSIS TEST MODE A).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B1152 indicated?

   YES - Replace the gauge control module (tach).

   NO - Intermittent failure, the system is OK at this time. Check for loose or poor connections. If the connections are good, check the battery condition (see **BATTERY TEST**), and the charging system.

DTC B1155: GAUGE CONTROL MODULE LOST COMMUNICATION WITH THE MICU (HEADLIGHT SWITCH MESSAGE); DTC B1156: GAUGE CONTROL MODULE LOST COMMUNICATION WITH THE MICU (WIPER SWITCH MESSAGE); DTC B1159: GAUGE CONTROL MODULE LOST COMMUNICATION WITH THE MICU (DOOR SW MESSAGE); DTC B1188: GAUGE CONTROL MODULE LOST COMMUNICATION WITH THE MICU (RM MESSAGE)

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see TROUBLESHOOTING - B-CAN SYSTEM DIAGNOSIS TEST MODE A).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Check for DTCs with the HDS.

   Are DTCs B1155, B1156, B1157, B1159, B1160, and/or B1188 indicated?

   YES - Go to step 4.

   NO - Intermittent failure. The gauge control module is OK at this time. Check for loose or poor connections. If the connections are good, check the battery condition (see **BATTERY TEST**), and the charging system.

4. Check for DTCs with the HDS.

Are DTCs B1155, B1156, B1157, B1159, B1160, and/or B1188 indicated?

YES - Faulty MICU; replace the under-dash fuse/relay box (see **UNDER-DASH FUSE/RELAY BOX**).

NO - Replace the gauge control module (tach) (see **REPLACEMENT**).

DTC B1157: GAUGE CONTROL MODULE LOST COMMUNICATION WITH THE MICU (MICU MESSAGE)

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see TROUBLESHOOTING - B-CAN SYSTEM DIAGNOSIS TEST MODE A).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Check for DTCs with the HDS.

   Is DTC B1157 indicated?

   YES - Go to step 5.

   NO - Intermittent failure. The gauge control module is OK at this time. Check for loose or poor connections. If the connections are good, check the battery condition (see **BATTERY TEST**), and the charging system.

4. Check for DTCs with the HDS.

   Are DTCs B1905 or B1211 also indicated?

   YES - Faulty MICU; replace the under-dash fuse/relay box.

   NO - Replace the gauge control module (tach).

DTC B1160: GAUGE CONTROL MODULE LOST COMMUNICATION WITH THE MICU (DRLOCKSW MESSAGE)

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see TROUBLESHOOTING - B-CAN SYSTEM DIAGNOSIS TEST MODE A).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Check for DTCs with the HDS.

   Is DTC B1160 indicated?

   YES - Go to step 5.

   NO - Intermittent failure. The gauge control module is OK at this time. Check for loose or poor connections. If the connections are good, check the battery condition (see **BATTERY TEST**), and the charging system.

4. Check for DTCs with the HDS.

   Are DTCs B1160 or B1905 also indicated?

   YES - Faulty MICU; replace the under-dash fuse/relay box.

   NO - Replace the gauge control module (tach).

DTC B1168: GAUGE CONTROL MODULE LOST COMMUNICATION WITH ECM/PCM (ENGINE MESSAGES); DTC B1169: GAUGE CONTROL MODULE LOST COMMUNICATION WITH THE PCM (A/T MESSAGES); DTC B1170: GAUGE CONTROL MODULE LOST COMMUNICATION WITH THE ABS/VSA MODULATOR-CONTROL UNIT (ABS/VSA MESSAGE); DTC B1178: F-CAN COMMUNICATION LINE ERROR; DTC B1187: GAUGE CONTROL MODULE LOST COMMUNICATION WITH THE SRS UNIT (SRS MESSAGE)

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see TROUBLESHOOTING - B-CAN SYSTEM DIAGNOSIS TEST MODE A).

1. Clear the DTCs using the HDS.

2. Turn the ignition switch OFF, and then back ON (II).
3. Start and run the engine for at least 5 seconds then turn the engine off.
4. Check for DTCs with the HDS.

   Is DTC B1168, B1169, B1170, B1178, and/or B1187 indicated?

   YES - Go to step 5.

   NO - Intermittent failure, the F-CAN communication line is OK at this time. Check for loose or poor connections. If the connections are good, check the battery condition (see **BATTERY TEST**), and the charging system.

5. Check for DTCs in the ECM/PCM or ABS/VSA.

   Are any DTCs indicated?

   YES - Troubleshoot the ECM/PCM or ABS/VSA.

   NO - Go to step 6.

6. Do the Gauge Control Module Input Test (see **GAUGE CONTROL MODULE (TACH) INPUT TEST**).

   Are all inputs OK?

   YES - Go to step 7.

   NO - Repair the faulty input then recheck for DTCs.

7. Substitute a known-good gauge control module (tach).
8. Clear the DTCs with the HDS.
9. Turn the ignition switch OFF, and then back ON (II).
10. Start and run the engine for at least 5 seconds then turn the engine off.
11. Check for DTCs with the HDS.

    Is DTC B1168, B1169, B1170, B1178, and/or B1187 indicated?

YES - Substitute a known-good ECM/PCM and retest. If the system/indication goes away, replace the original ECM/PCM.

NO - The original gauge control module (tach) is faulty; replace the gauge control module (tach) (see **TACHOMETER**).

DTC B1173: GAUGE CONTROL MODULE LOST COMMUNICATION WITH THE TPMS CONTROL UNIT (TPMS MESSAGE)

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see TROUBLESHOOTING - B-CAN SYSTEM DIAGNOSIS TEST MODE A).

1. Clear the DTCs using the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B1173 indicated?

   YES - Go to step 5.

   NO - Intermittent failure, the system is OK at this time. Check for loose or poor connections.

5. Turn the ignition switch OFF.
6. Disconnect the gauge control module (tach) 36P connector.
7. Disconnect the TPMS control unit 20P connector.
8. Check for continuity between the gauge control module (tach) 36P connector No. 1 and No. 19 and TPMS control unit 20P connector No. 2 and No. 11 terminals individually.

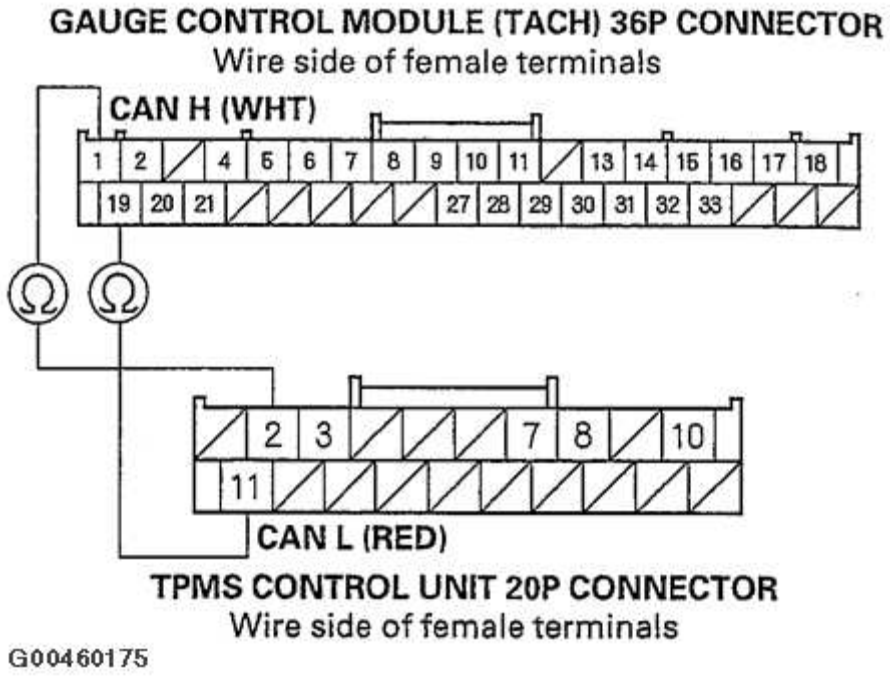
GAUGE CONTROL MODULE (TACH) 36P CONNECTOR
Wire side of female terminals
CAN H (WHT)
1 2 4 5 6 7 8 9 10 11 13 14 15 16 17 18
19 20 21 27 28 29 30 31 32 33
2 3 7 8 10
11
CAN L (RED)
TPMS CONTROL UNIT 20P CONNECTOR
Wire side of female terminals
G00460175

Fig. 15: Checking Continuity Between Gauge Control Module & TPMS Control Module
Courtesy of AMERICAN HONDA MOTOR CO., INC.

Is there continuity?

YES - Substitute a known-good TPMS control unit and recheck. If DTC B1183 is still indicated, replace the gauge control module (tach).

NO - Repair an open in the wire.

DTC B1175: FUEL LEVEL SENSOR (FUEL GAUGE SENDING UNIT) CIRCUIT OPEN

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see TROUBLESHOOTING - B-CAN SYSTEM DIAGNOSIS TEST MODE A).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Wait for 30 seconds.

4. Check for DTCs with the HDS.

   Is DTC B1175 indicated ?

   YES - Go to step 5.

   NO - Intermittent failure, the fuel level sensor circuit is OK at this time. Check for loose or poor connections.

5. Turn the ignition switch OFF.
6. Disconnect the fuel tank unit 5P connector and the gauge control module (tach) 36P connector.
7. Connect the fuel tank unit 4P connector No. 1 and No. 3 terminals and body ground with jumper wires.

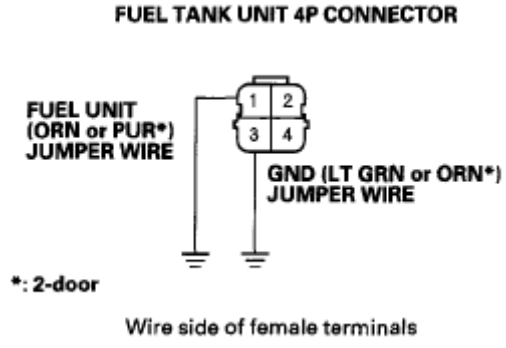

Fig. 16: Connecting Fuel Tank Unit 4P Connector No. 1 And No. 3 Terminals And Body Ground With Jumper Wires

8. Check for continuity between gauge control module (tach) 36P connector No. 32 and No. 33 terminals and body ground individually.

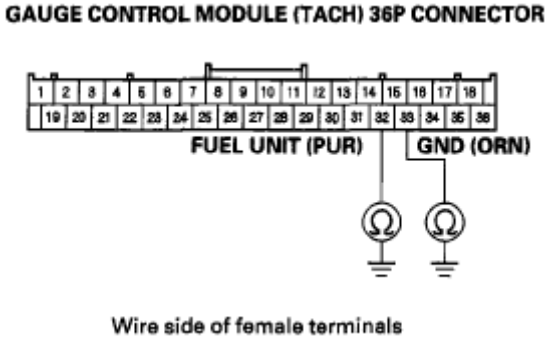
GAUGE CONTROL MODULE (TACH) 36P CONNECTOR
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36
FUEL UNIT (PUR)
GND (ORN)
Wire side of female terminals

Fig. 17: Checking Continuity Between Gauge Control Module (Tach) 36P Connector No. 32 And No. 33 Terminals And Body Ground

Is there continuity?

YES - Go to step 9.

NO - Repair an open in the wire between the gauge control module (tach) and the fuel tank unit.

9. Do the fuel gauge sending unit test (see **FUEL GAUGE SENDING UNIT TEST** for R18A1 engine or **FUEL GAUGE SENDING UNIT TEST** for R20Z3 engine) .

   Is the fuel gauge sending unit OK?

   YES - Replace the gauge control module (tach).

   NO - Replace the fuel tank unit.

DTC B1176: FUEL LEVEL SENSOR (FUEL GAUGE SENDING UNIT) CIRCUIT SHORT

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see TROUBLESHOOTING - B-CAN SYSTEM DIAGNOSIS TEST MODE A).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Wait for 30 seconds.
4. Check for DTCs with the HDS.

   Is DTC B1176 indicated?

   YES - Go to step 5.

   NO - Intermittent failure, the fuel level sensor circuit is OK at this time. Check for loose or poor connections.

5. Turn the ignition switch OFF.
6. Disconnect the fuel tank unit 4P connector.
7. Clear the DTCs with the HDS.
8. Turn the ignition switch OFF, and then back ON (II).
9. Wait for 30 seconds.
10. Check for DTCs with the HDS.

    Is DTC B1176 indicated?

    YES - Go to step 11.

    NO - Replace the fuel gauge sending unit (see **FUEL PUMP/FUEL GAUGE SENDING UNIT REPLACEMENT** for R18A1 engine or **FUEL PUMP/FUEL GAUGE SENDING UNIT REPLACEMENT** for R20Z3 engine).

11. Disconnect the gauge control module (tach) 36P connector.
12. Check for continuity between the gauge control module (tach) 36P connector No. 32 terminal and body ground.

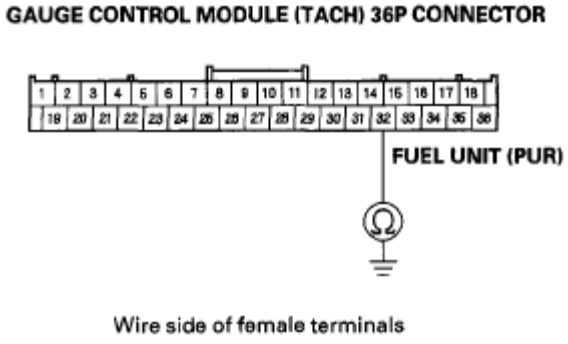
GAUGE CONTROL MODULE (TACH) 36P CONNECTOR
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36
FUEL UNIT (PUR)
Wire side of female terminals

Fig. 18: Checking Continuity Between Gauge Control Module (Tach) 36P Connector No. 32 Terminal And Body Ground

Are there continuity?

YES - Repair a short in the wire between the gauge control module (tach) and the fuel tank unit.

NO - Replace the gauge control module (tach).

DTC B1177: BATTERY VOLTAGE ABNORMAL

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see TROUBLESHOOTING - B-CAN SYSTEM DIAGNOSIS TEST MODE A).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Check for DTCs with the HDS.

   Is DTC B1177 indicated?

   YES - Go to step 8.

   NO - Go to step 4.

4. Clear the DTCs with the HDS.
5. Turn the ignition switch OFF, and then back ON (II).
6. Crank the engine.
7. Check for DTCs with the HDS.

   Is DTC B1177 indicated?

   YES - Go to step 8.

   NO - Intermittent failure. The gauge control module (tach) and power supply voltage (IG1) that is supplied to the gauge control module (tach) are OK at this time. The battery may have been discharged, and recovered.

8. Check the battery (see **BATTERY TEST**) and the charging system.

   Is the battery condition normal and the charging system OK?

   YES - Go to step 9.

NO - The battery needs a recharge or replacement, or the charging system needs to repaired.

9. Turn the ignition switch ON (II).
10. With the gauge control module (tach) 36P connector still connected, check for voltage between the body ground and the gauge control module (tach) 36P connector No. 17 terminal.

    Is the voltage above 7.5 V?

    YES - Replace the gauge control module (tach).

    NO - Repair an open or high resistance in the BRN wire between the ignition switch and the gauge control module (tach).

DTC B1183: GAUGE CONTROL MODULE LOST COMMUNICATION WITH THE EPS CONTROL UNIT (EPS MESSAGE)

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Is DTC B1183 indicated?

   YES - Go to step 5.

   NO - Intermittent failure. The gauge control module (tach) is OK at this time. Check for loose or poor connections.

5. Check for DTCs with the HDS.

   Are DTCs B1168, B1169, B1178, and B1187 and indicated at the same time?

   YES - Troubleshoot DTC B1178.

   NO - Go to step 6.

6. Check for EPS DTCs with the HDS.

   Are any DTCs indicated?

   YES - Go to the indicated DTC troubleshooting , then recheck.

   NO - Go to step 7.

7. Turn the ignition switch OFF.
8. Disconnect the gauge control module (tach) 36P connector.
9. Disconnect the EPS control unit 20P connector.
10. Check for continuity between the gauge control module (tach) 36P connector No. 1 and No. 19 and EPS control unit 28P connector No. 1 and No. 15 terminals individually.

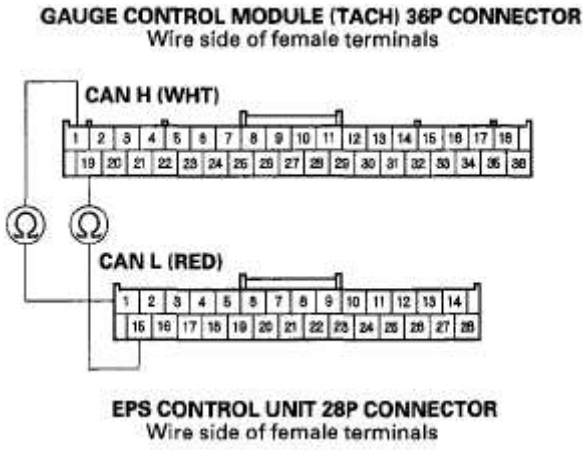
GAUGE CONTROL MODULE (TACH) 36P CONNECTOR
Wire side of female terminals
CAN H (WHT)
CAN L (RED)
EPS CONTROL UNIT 28P CONNECTOR
Wire side of female terminals

Fig. 19: Checking Continuity Between Gauge Control Module (Tach) 36P Connector No. 1 And No. 19 And EPS Control Unit 28P Connector No. 1 And No. 15 Terminals

Are there continuity?

YES - Substitute a known-good EPS control unit and recheck. If DTC B1183 is still indicated, replace the gauge control module (tach).

NO - Repair an open in the wire.

GAUGE CONTROL MODULE (TACH) INPUT TEST

NOTE: Before testing, do the gauge control module self-diagnosis procedure, and make sure the B-CAN communication line is OK.

1. Turn the ignition switch OFF.
2. Remove the gauge control module (tach) and disconnect the 36P connector from it (see **TACHOMETER**).

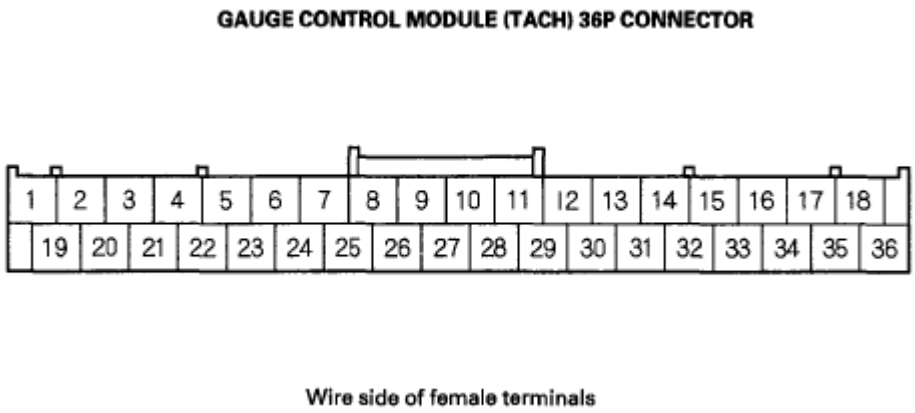

Fig. 20: Identifying Gauge Control Module (Tach) 36P Connector

3. Inspect the connector and socket terminals to be sure they are all making good contact.
   - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals are OK, go to step 4.
4. With the connector still disconnected, make these input tests at the connector.
   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, go to step 5.

GAUGE CONTROL MODULE (TACH) INPUT TEST (CONNECTOR DISCONNECTED)

				Possible cause if

Cavity	Wire	Test condition	Test: Desired result	result is not obtained
20 [2]	LT GRN [GRY]	Under all conditions (disconnect the gauge control module (speedo) 12P connector)	Check for continuity between the No. 20 terminal and gauge control module (speedo) 12P connector No. 7 terminal: There should be continuity.	An open in the wire
			Check for continuity: There should be no continuity.	A short to ground in the wire
13	RED [BLU]	Combination light switch ON	Attach to ground: The illuminations of the steering wheel switches come on full bright.	• Faulty LEDs • An open in the wire
14	RED	Combination light switch ON	Attach to ground: The illuminations of the dash lights, the audio unit, and the heater control panel/HVAC control unit lights come on full bright.	• Faulty LEDs • An open in the wire
[ ] :2-door				

5. Reconnect the connector to the gauge control module (tach), and make these input tests at the connector.
   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, the gauge control module (tach) must be faulty; replace it.

GAUGE CONTROL MODULE (TACH) INPUT TEST

(CONNECTOR RECONNECTED)

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
15	BLK	Under all conditions	Check for voltage to ground: There should be less than 0.5 V.	• Poor ground (G503) • An open in the wire
16	BLK	Under all conditions	Check for voltage to ground: There should be less than 0.5 V.	• Poor ground (G504) • An open in the wire
17	BRN	Ignition switch ON (ID	Check for voltage to ground: There should be battery voltage.	• Blown No. 10 (7.5 A) fuse in the under-dash fuse/relay box • An open in the wire
18	WHT	Under all conditions	Check for voltage to ground: There should be battery voltage.	• Blown No. 23 (10 A) fuse in the under-hood fuse/relay box • An open in the wire
		Ignition switch ON (II), ILLUMI (+) switch pressed	Check for voltage to ground: There should be less than 1	• Poor ground (G501) • Faulty dash light brightness

			V.	controller • An open in the wire
4	BRN	Ignition switch ON (II), ILLUMI (+) switch released	Check for voltage to ground: There should be 5 V or more.	• Faulty dash light brightness controller • A short to ground in the wire
5	YEL	Ignition switch ON (II), ILLUMI (-) switch pressed	Check for voltage to ground: There should be less than 1 V.	• Poor ground (G501) • Faulty dash light brightness controller • An open in the wire
		Ignition switch ON (II), ILLUMI (-) switch released	Check for voltage to ground: There should be 5 V or more.	• Faulty dash light brightness controller • A short to ground in the wire
6	BLU	Ignition switch ON (II), SELECT/RESET switch pressed	Check for voltage to ground: There should be less than 1 V.	• Poor ground (G501) • Faulty dash light brightness controller • An open in the wire

		Ignition switch ON (II), SELECT/RESET switch released	Check for voltage to ground: There should be 5 V or more.	• Faulty dash light brightness controller • A short to ground in the wire
7	PUR	Ignition switch ON (II), mph, km/h switch pressed	Check for voltage to ground: There should be less than 1 V.	• Poor ground (G501) • Faulty dash light brightness controller • An open in the wire
		Ignition switch ON (II), mph, km/h switch released	Check for voltage to ground: There should be 5 V or more.	• Faulty dash light brightness controller • A short to ground in the wire
8 (Canada models)	BLU	Ignition switch ON (II), washer fluid is half or more in the washer reservoir	Check for voltage to ground: There should be less than 1 V.	• Poor ground (G401) • Faulty washer fluid level switch • An open in the wire
		Ignition switch ON (II), washer fluid is empty in the washer	Check for voltage to ground: There should	• Faulty washer fluid level switch

		reservoir	be 5 V or more.	• A short to ground in the wire
27	GRN	Ignition switch ON (II), brake fluid is full level in the reservoir	Check for voltage to ground: There should be 5 V or more.	• Faulty brake fluid level switch • A short to ground in the wire
		Ignition switch ON (II), brake fluid is lower level in the reservoir	Check for voltage to ground: There should be less than 1 V.	• Poor ground (G401) • Faulty brake fluid level switch • An open in the wire
28	LT GRN	Ignition switch ON (II), parking brake lever pulled	Check for voltage to ground: There should be less than 1 V.	• Faulty parking brake switch • An open in the wire
		Ignition switch ON (II), parking brake lever released	Check for voltage to ground: There should be 5 V or more.	• Faulty parking brake switch • A short to ground in the wire

GAUGE CONTROL MODULE (SPEEDO) INPUT TEST

NOTE: Before testing, do the gauge control module self-diagnosis procedure, and make sure the B-CAN communication line is OK.

1. Turn the ignition switch OFF.
2. Remove the gauge control module (SPEEDO) and disconnect the 12P connector from it (see **SPEEDOMETER**).

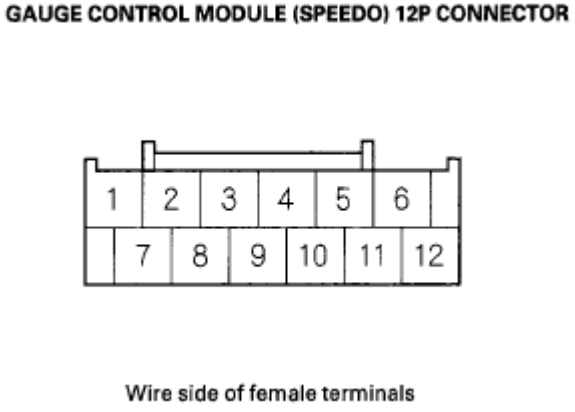

Fig. 21: Identifying Gauge Control Module (Speedo) 12P Connector

3. Inspect the connector and socket terminals to be sure they are all making good contact.
   - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals are OK, go to step 4.
4. With the connector still disconnected, make these input tests at the connector.
   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, go to step 5.

GAUGE CONTROL MODULE (SPEEDO) INPUT TEST (CONNECTOR DISCONNECTED)

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
11	BLU	Ignition switch ON, turn signal	Check for voltage to ground: There should be battery voltage when the	• Faulty MICU • Faulty combination light switch

		switch in LEFT	lights are flashing.	• An open in the wire
12	GRN	Ignition switch ON, turn signal switch in RIGHT	Check for voltage to ground: There should be battery voltage when the lights are flashing.	• Faulty MICU • Faulty combination light switch • An open in the wire
7	LT GRN	Under all conditions (disconnect the gauge control module (tach) 36P connector)	Check for continuity between the No. 7 terminal and gauge control module (tach) 36P connector No. 20 terminal: There should be continuity.	An open in the wire
			Check for continuity between the No. 7 terminal and body ground (gauge control module (tach) 36P connector disconnected): There should be no continuity.	A short ground in the wire

5. Reconnect the connector to the gauge control module (speedo), and make the input test at the connector.
   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If the input test proves OK, the gauge control module (speedo) must be faulty; replace it.

GAUGE CONTROL MODULE (SPEEDO) INPUT TEST (CONNECTOR RECONNECTED)

		Test	Test: Desired	Possible cause if result

Cavity	Wire	condition	result	is not obtained
6	WHT	Under all conditions	Check for voltage to ground: There should be battery voltage.	• Blown No. 23 (10 A) fuse in the under-hood fuse/relay box • An open in the wire
5	BRN	Ignition switch ON (ID	Check for voltage to ground: There should be battery voltage.	• Blown No. 10 (7.5 A) fuse in the under-dash fuse/relay box • An open in the wire
4	BLK	Under all conditions	Check for voltage to ground: There should be less than 0.5 V.	• Poor ground(G504) • An open in the wire

REPLACEMENT

TACHOMETER

1. Remove the subdisplay visor assembly (see **SUBDISPLAY VISOR REMOVAL/INSTALLATION**).
2. Remove the three screws from the gauge control module (tach) (A).

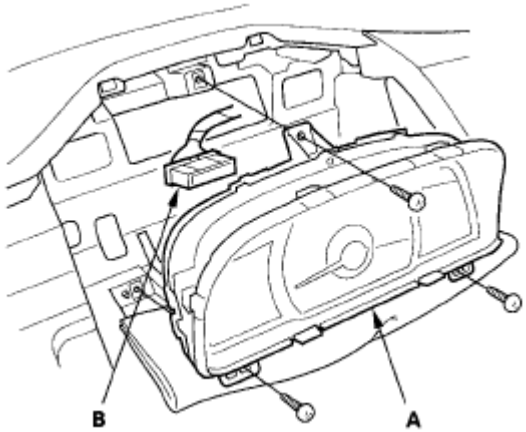

Fig. 22: Removing Gauge Control Module Screws (Tach)

3. Disconnect the 36P connector (B) from the gauge control module (tach).

4. Install the gauge in the reverse order of removal.

SPEEDOMETER

1. Remove the instrument panel (see **INSTRUMENT PANEL REMOVAL/INSTALLATION** .
2. Remove the three screws from the gauge control module (speedo) (A).

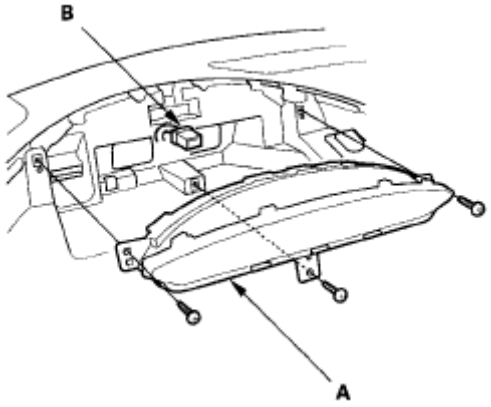

Fig. 23: Removing Gauge Control Module Screws (Speedo)

3. Disconnect the 12P connector (B) from the gauge control module (speedo).
4. Install the gauge in the reverse order of removal.

REWRITING THE ODO DATA AND TRANSFERRING SMART MAINTENANCE ON A NEW GAUGE CONTROL MODULE

NOTE:

- **Obtain a new gauge control module before starting the rewriting process.**
- **Rewriting is not possible on a gauge control module that will not communicate with the HDS.**
- **Make sure that the HDS shows the correct VIN for the car you are working on.**
- **One you have started this procedure, you must complete it before removing the HDS from the DLC.**
- **Connect a battery jump box (not a Battery charger) to insure that correct battery voltage will be maintained.**

1. Before replacing the gauge control module, connect the HDS.
2. Select GAUGES from the BODY ELECTRICAL menu display.
3. Select "Gauge Control Module Replacement (ODO rewrite)" from the ADJUSTMENT menu, and follow the instructions on the display to retrieve the ODO value and the Smart Maintenance information.
4. Replace the gauge control module.
5. Follow the instructions on the display to write the new ODO value and Smart maintenance to the new gauge control module. If the data transfer fails, refer to the instructions to release the locked ODO value .

RELEASE LOCKED ODOMETER MILEAGE TO THE ORIGINAL GAUGE CONTROL MODULE

If after you attempt to transfer mileage the odometer has dashes (- - -), garbled, or incorrect value display, do the following Start over. The original gauge control module is going to be unlocked and restored to its original state.

1. Confirm that you have the latest HDS version of software.
2. Make sure that the HDS shows the correct VIN for the car you are working on.
3. With the ignition switch OFF, reconnect the original gauge assembly.
4. Completely re-boot the HDS.
5. Clear any stored DTCs.
6. Navigate to Body Electric/Gauges/Adjustment/Instrument Panel Replacement.
7. Select "3. Releasing Locked ODO Valve".
8. Follow the prompts and the Odometer mileage will be restored.
9. Start over and make sure the screen prompts are followed.

DASH LIGHTS BRIGHTNESS CONTROLLER AND ODOMETER SELECT/RESET BUTTON TEST/REPLACEMENT

1. Remove the subdisplay visor (see **SUBDISPLAY VISOR REMOVAL/INSTALLATION**) and disconnect the connectors.
2. Remove the two screws and the dash lights brightness controller-odometer select/reset button (A).

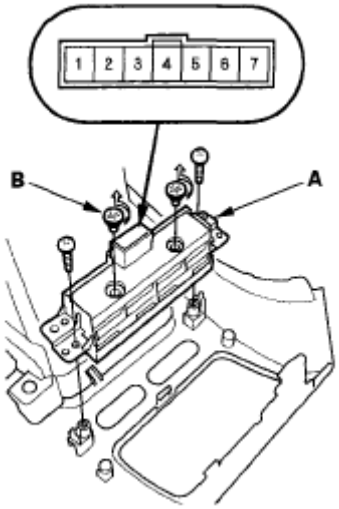

Fig. 24: Removing Dash Lights Brightness Controller-Odometer Select/Reset Button

3. Check for continuity between the terminals in each switch position according **Fig. 25** .

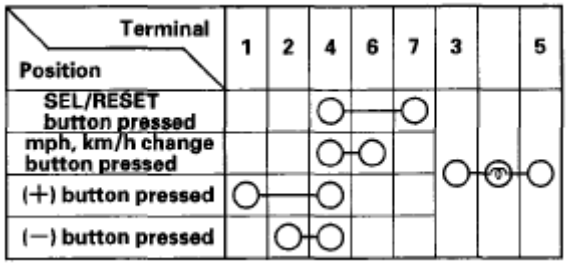

Fig. 25: Checking Continuity Between Dash Light Brightness Controller And Odometer Select/Reset Button Terminals Chart

4. If the continuity is not as specified, replace the bulbs (B) or the dash lights brightness controller-odometer select/reset button.

OUTSIDE AIR TEMPERATURE INDICATOR CALIBRATION

DESCRIPTION

The outside temperature sensor is located behind the center of the front bumper. The gauge control module (tach) uses measurements from this sensor to display the outside air temperature.

Because of the location of the sensor, it may be affected by heat reflection from the road, engine and radiator heat or hot exhaust from surrounding traffic. These conditions can heat soak the outside air temperature sensor and cause inaccurate readings. Logic has been written into the gauge control module (tach) to help prevent abnormal or fluctuating outside air temperature indicator readings.

OUTSIDE AIR TEMPERATURE INDICATOR LOGIC

Initial outside air temperature indication after the ignition switch is turned ON (II).

- If the engine coolant temperature is 140°F (60°C) or higher when the ignition switch is turned ON (II), the outside air temperature indicated the last time the key was turned off will be displayed regardless of the current temperature measured by the outside air temperature sensor.
- If the engine coolant temperature is 139°F (59°C) or lower when the ignition switch is turned ON (II), the current temperature measured by the outside air temperature sensor will be indicated.

UPDATE TO THE OUTSIDE AIR TEMPERATURE INDICATOR WHILE DRIVING

If the temperature measured by the outside air temperature sensor is greater than the temperature on the outside air temperature indicator, the outside temperature indicator will increase by 1.8°F (1°C) per minute after the vehicle speed is greater than 19 mph (30 km/h) for more than 1 minute and 30 seconds. It will continue to increase until the current outside air temperature is indicated. So, the first change to the outside air temperature indicator is 1 minute and 30 seconds after the vehicle speed is greater than 19 mph (30 km/h). If the vehicle speed drops below 19 mph (30 km/h), the indicator will not update again until the vehicle speed is increased to 19 mph (30 km/h) or more for more than 1 minute and 30 seconds again. If the outside air temperature is less than the indicated temperature, the temperature will decrease 1°F every 1.1 seconds (1°C every 2 seconds) until the current outside air temperature is indicated regardless of vehicle speed.

TROUBLESHOOTING

If the indicator displays "- - -" for more than 2 seconds after selecting the outside air temperature display mode, check the outside air temperature sensor, or gauge control module self-diagnosis (see **SELF-DIAGNOSTIC FUNCTION**).

CALIBRATION

The outside air temperature indicator's displayed temperature can be recalibrated ±5°F (or ±3°C) to meet the customer's expectations.

1. Turn the ignition switch ON (II).
2. Select the outside air temperature display.
3. Press and hold the SEL/RESET switch until the trip meter resets, then release it. Press, and continue to hold, the switch again, and the display will scroll through temperature settings from +5°F to -5°F (or +3°C to -3°C) as shown.

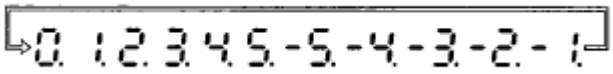

Fig. 26: Resetting Trip Meter

4. When the desired correction value appears on the display, release the button, and the recalibrated outside air temperature will be displayed.

   Example:

   Incorrect value = 68°F (20 °C)
   Desired correction value = +2°F (+1°C)
   Correct valve = 70°F (21°C)
   Desired correction value = -2°F (-1°C)
   Correct valve = 66°F (19°C)

NOTE: The recalibration temperature is not the value the sensor sees. Therefore the temperature can only be adjusted ±5 degrees from the sensor.

NOTE: To recalibrate the display to the true temperature, remove the outside air temperature sensor (A), but leave it connected. Submerge the sensor and a thermometer (B) in a container of ice water (C). Select the calibration mode as described above, then

recalibrate the display to the true temperature.

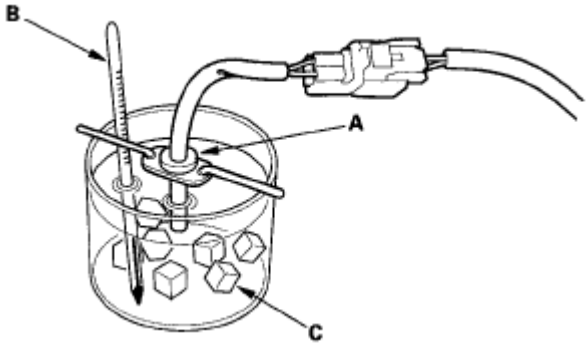

Fig. 27: Submerging Sensor And Thermometer In Container Of Ice Water

OUTSIDE AIR TEMPERATURE SENSOR TEST

1. Remove the outside air temperature sensor (see **OUTSIDE AIR TEMPERATURE SENSOR REPLACEMENT**).
2. Dip the sensor in ice water, and measure the resistance. Then pour warm water on the sensor, and check for a change in resistance.
3. Compare the resistance reading between the No. 1 and No. 2 terminals of the outside air temperature sensor with the specifications shown in **Fig. 28** ; the resistance should be within the specifications.

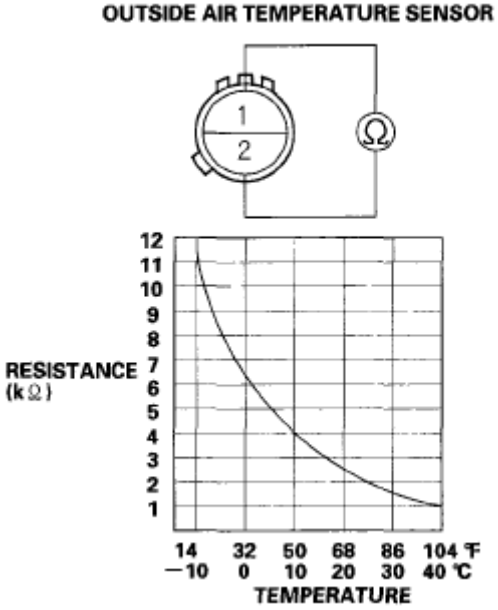

Fig. 28: Outside Air Temperature Sensor Graph

4. If the resistance is not as specified, replace the outside air temperature sensor (see **OUTSIDE AIR TEMPERATURE SENSOR REPLACEMENT**).

OUTSIDE AIR TEMPERATURE SENSOR REPLACEMENT

1. Remove the front bumper (see **FRONT BUMPER REMOVAL/INSTALLATION**).
2. Lift the tab (A) to release the lock, then remove the outside air temperature sensor (B) from the receiver/dryer desiccant bracket [from the A/C condenser].

   [ ] :2-door

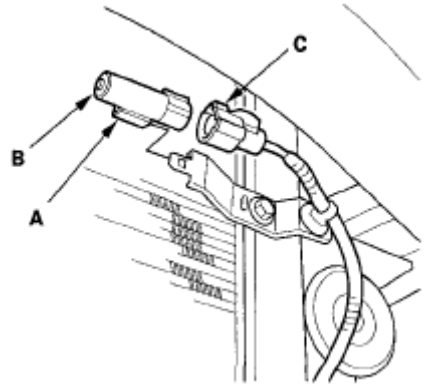

Fig. 29: Removing Outside Air Temperature Sensor

3. Install the sensor in the reverse order of removal.